User Manual

UNO-3483G Series

Intel® Core® i7 Processors Embedded Automation PC, with 1x PCI(e) Extension Slots

ADVANTECH

Enabling an Intelligent Planet

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This manual applies to the below model which is abbreviated as UNO-3400G series products in this article.

- UNO-3483G
- UNO-3483G-374AE
- UNO3483G36A1501E-T
- UNO3483G37A1502E-T
- UNO3483G37A1503E-T

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
17. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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Chapter 1

Overview

This chapter provides an overview of UNO-3400G series' specifications.

Sections include:

- Introduction
- Hardware specification
- Safety precautions
- Chassis dimensions
- Accessories

1.1 Introduction

Advantech's UNO-3400G is an embedded Application Ready Platform (ARP) with Intel high performance 3rd generation Core i7/i3 series processor and 7-series PCH. It supports one PCI or PCI express slot, which can fulfill extensive requirements in various projects.

The UNO-3400G series products provide a rich array of interfaces, including VGA and HDMI for high definition displays (support 2 independent displays), 2 Giga LANs which support teaming function with fault tolerance, link aggregation and load balance features, 2 Mini-PCIe slots (support iDoor module expansion) and exchangeable RTC battery. It also features internal pin header on main board for dongle to protect software security.

UNO-3400G series products also provide 2 user LEDs to alarm in exception situation, such as power failure, battery failure and over current, etc. Also, it adopts dual power input for redundancy and two two hot-swapping HDD/SSD bays to support RAID0/1.

Different from general PCs, UNO-3400G has a compact heat sink with integrated seals mounted on the outside of the cabinet through a corresponding cutout, has a placing-and-click feature considers users' activities and then simplifies the installation procedure for space-saving and high protection using IP67 certification.

1.2 Hardware Specifications

1.2.1 General

- **Certification:** CE, UL, FCC, BSMI
- **Dimensions (W×D×H):** UNO-3483G: 305 x 110 x 225 mm (120.1" x 32.3" x 88.6")Aluminum
- **Enclosure:** Rubber
- **Mounting:** Enclosure mount
- **Power Consumption:** UNO-3483G: 35W (Typical, no card added)
- **Power Requirements:** 24V (e.g +24 V @ 4 A), support AT/ATX power mode BIOS AT simulation mode (support system reboot automatically after power recovery)
- **Weight:** UNO-3483G: 4.5 kg
- **OS Support:** Windows7/8, WES7, WES2009, Linux
- **System Design:** Fanless and no internal cable
- **Remote Management:** Built-in Advantech DiagAnywhere agent in WES2009/ WES7

1.3 System Hardware

- **CPU:** UNO-3483G: Intel Core® i7-3612QE (4M Cache, 2.10GHz)
- **Mother Board:** MIO-5290
- **Memory:** 8G DDR3L SDRAM burn-in ((Non-ECC, DDR3/DDR3L with one unbuffered SODIMM slot, up to 8G) Transcend/AQD-SD3L8GN16-SG 8GB
- **Indicators:** LEDs for power, SATA, LAN (active status)
- **Storage:** HDD: 2 ×2.5" SATA HDD/SSD bays, support SATA Gen3.0
- **Display:** 1 ×VGA, 1 ×HDMI (support 2 independent displays) 1920*1200
- **Watchdog Timer:** 256 levels time interval, programmable from 1 to 255 sec
- **Expansion Slots:** UNO-3483G: 3 x Mini PCIe slots, 1x PCI slot or 1x PCIe slots
- **PCI Slot Power:**
  - 12 V @ 0.5 A
  - -12 V @ 0.1 A
  - 5 V @ 2 A
  - 3.3 V @ 3 A
- **PCIe Slot Power:**
  - 12 V @ 2.1 A
  - 3.3V @3 A
  - 3.3 Vaux @ 0.375 A
- **SATA Slot Power:** 5V@0.7A

Note! *Total power consumption combined on PCI and PCIe slots should be less than 25 Watt.*

1.3.1 I/O Interfaces

- **LAN:**
  - 2 ×10/100/1000 Base-T RJ45 ports
  - Support AMT (UNO-3483G) and wake on LAN
  - Burn-in boot ROM in flash BIOS
- **USB Ports:** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)

1.3.2 Environment

- **Relative Humidity:** 95% @40°C (Non-condensing)
- **Operating Temperature:** -20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Shock Protection:**
  - IEC 60068-2-27
  - Compact Flash: 50 G @ wall mount, half sine, 11 ms
  - HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection:**
  - IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
  - Compact Flash: 2 Grms @ 5 ~ 500 Hz
  - HDD: 0.3 Grms @ 5 ~ 500 Hz

1.3.3 Expansion Board (Optional)

- **Model:** UNO-3083G
- **Optional Expansion Type:** 1x PCI slot, or 1x PCIe slot

1.4 Safety Precautions

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable.

Warning! *Always disconnect the power cord from your chassis whenever you are working on it. Do not connect while the power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the chassis.*

Caution! *Always ground yourself to remove any static electric charge before touching UNO-3000G series. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag.*

1.5 Chassis Dimensions

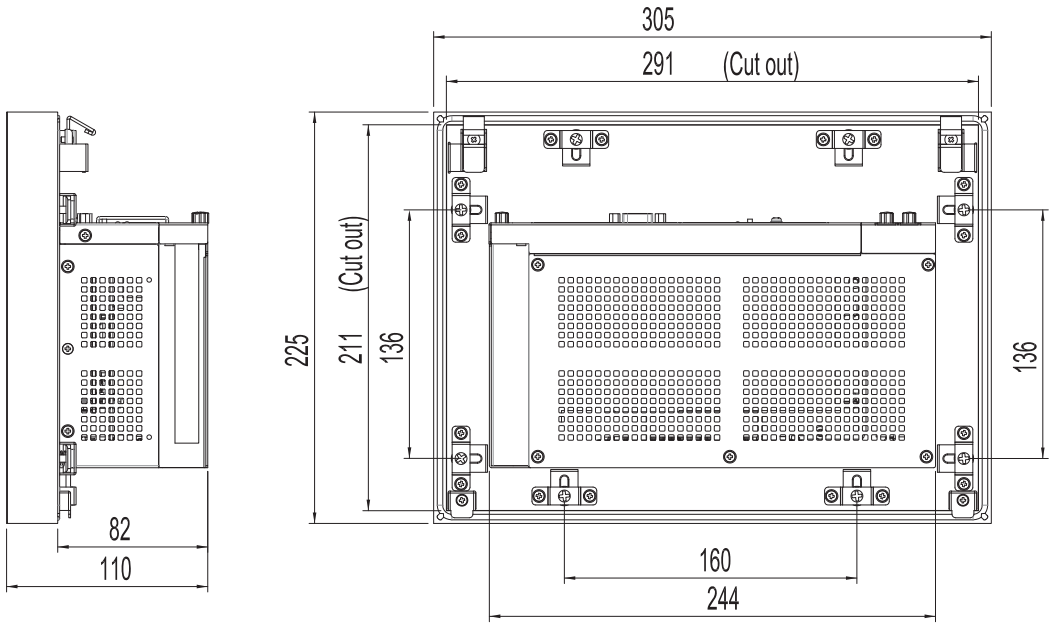


Figure 1.1 UNO-3483G Dimensions

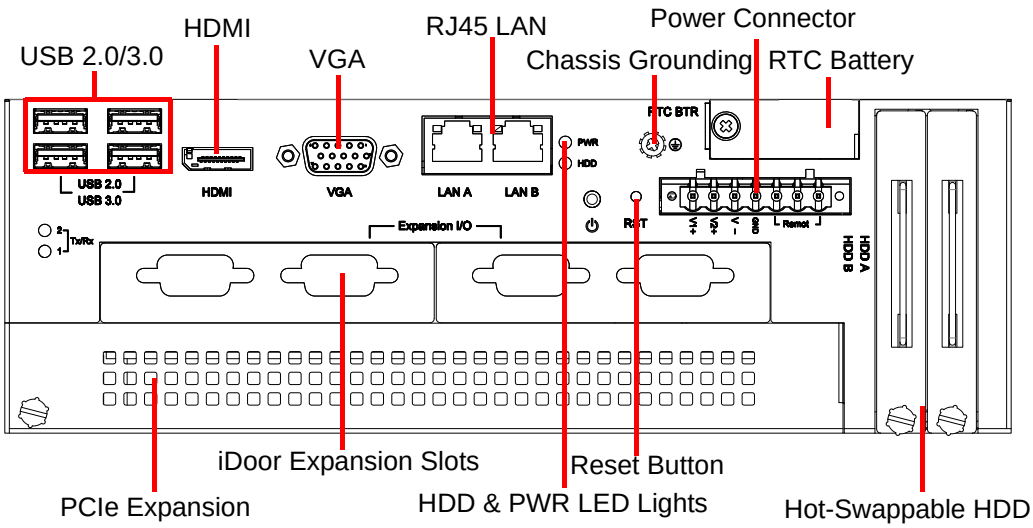


Figure 1.2 I/O View

1.6 Accessories

Please refer to the below accessories list for UNO-3400G series.

- 1 × 7-pin plug-in block for power wiring
- 1 × DVI- VGA Antenna connector
- 1 × Warranty card
- 1 × UNO series driver &utility DVD-ROM
- 1× USB KeyPro holder
- 1 × EMI bead core

Chapter 2

Hardware Functionality

This chapter shows how to setup UNO-3400G series' hardware functions, including connecting peripherals, setting switches and indicators.

Sections include:

- **Peripherals**
- **RS-232 Interface**
- **RS-422/485 Interface**
- **LAN / Ethernet Connector**
- **Power Connector**
- **Mini PCIe Socket**
- **Audio Connector**
- **USB Connector**
- **DVI/DP/HDMI Display Connector**
- **Reset Button**

2.1 Introduction

The following figures show the interfaces of UNO-3483G and the detail information by each peripheral.

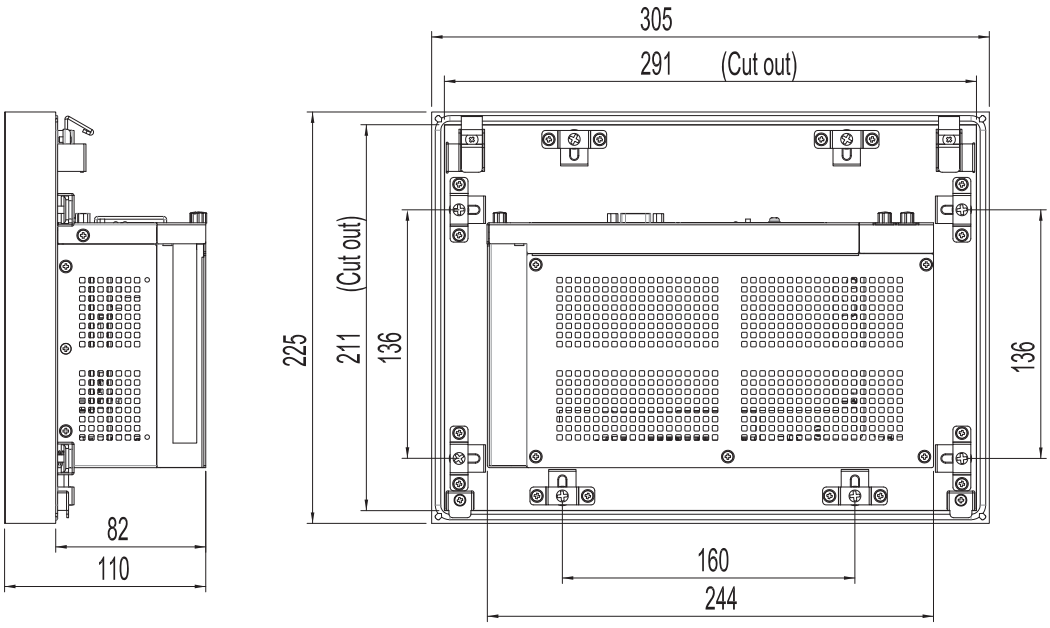


Figure 2.1 UNO-3483G Dimensions

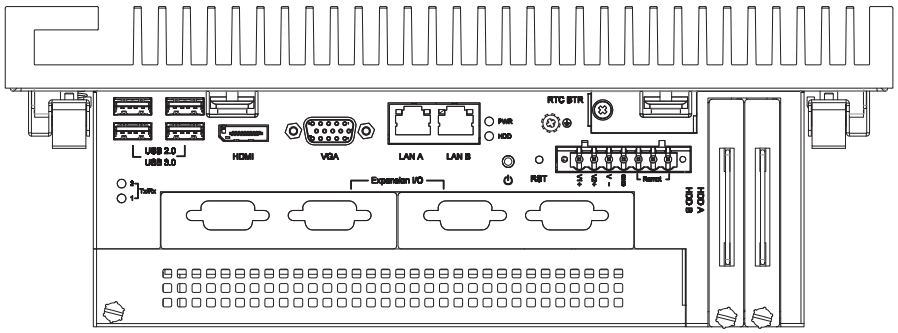


Figure 2.2 Top view of UNO-3483G

2.2 Serial Interface (COM1/COM2)

UNO-3483G offers one standard RS-232 and one RS-422/485 serial communication interface ports: COM1 and COM2 (Pin header CN31).

The IRQ and I/O address of serial ports are listed as below.

COM1: 3F8, IRQ4

COM2: 2F8, IRQ3

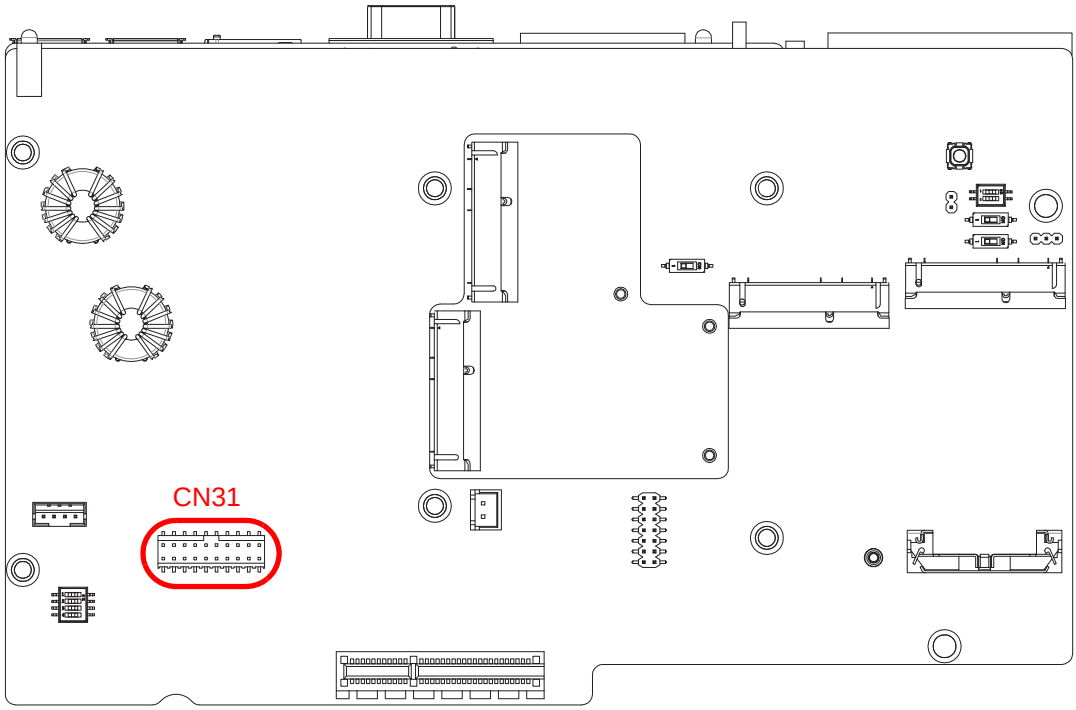


Figure 2.3 Pin header of COM1/COM2

2.2.1 RS-232 Interface (COM1)

UNO-3483G offers one RS-232 serial communication interface ports: COM1. Please refer to Appendix for their pin assignments.

2.2.2 RS-422/485 (COM2) detection

In RS-422/485 mode, UNO-3483G automatically detects signals to match RS-422 or RS-485 networks. (No jumper change required).

2.2.3 Automatic Data Flow Control Function for RS-485

In RS-485 mode, the UNO-3483G automatically detects the direction of incoming data and switches its transmission direction accordingly. So no handshaking signal (e.g. RTS signal) is necessary. This lets you conveniently build an RS-485 network with just two wires. More importantly, application software previously written for half duplex RS-232 environments can be maintained without modification.

2.2.4 To switch the internal SW8 according to the placement

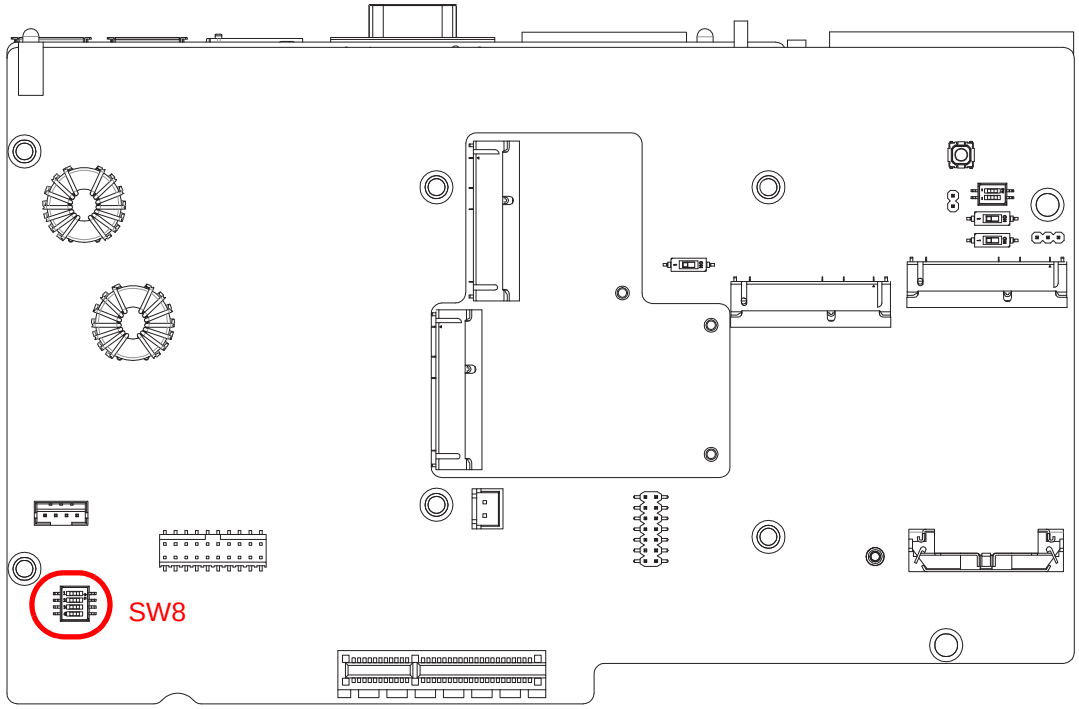


Figure 2.4 SW8 Location

- COM2 RS422 Tx and RS485 D+/D- termination (pin1-pin8)

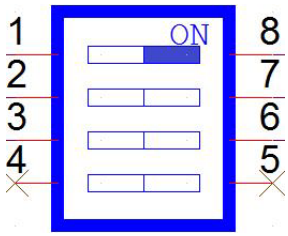


Figure 2.5 With termination (default)

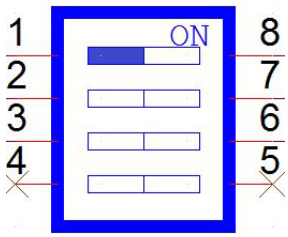


Figure 2.6 Without termination

- COM2 RS422 Rx termination (pin2-pin7)

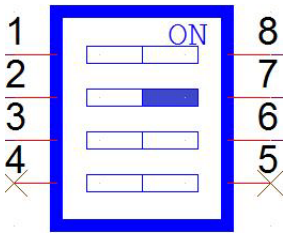


Figure 2.7 With termination (default)

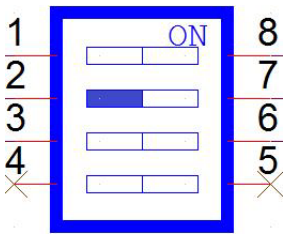


Figure 2.8 Without termination

2.3 LAN: Ethernet Connector

UNO-3483G is equipped with four Gigabit LAN controller. The controller chip used is the Intel Ethernet controller with that is fully compliant with 802.1Qav, IEEE1588/ 802.1AS, 802.3az standards and Intel? AMT function (Intel AMT function accompanies certain SKU's of Core-i processors). The Ethernet port provides four standard RJ-45 jacks on the front I/O and LED indicators in front of the connector to show its status of Link (100Mbps orange LED, 1000Mbps green LED) and Active (flashing green LED) status.

Note! *UNO-3483G with 82579LM LAN chip can support AMT.*

2.4 Power Connector

UNO-3483G comes with a Phoenix connector that carries 12/24VDC (±20%) external power input, and features reversed wiring protection. Therefore, it will not cause any damage to the system by reversed wiring of ground line and power line. Please refer to Appendix A.

2.5 USB Connector

The USB interface supports Plug and Play, which enables you to connect or disconnect a device, without turning off the computer. This provides four USB connectors, which gives complete Plug & Play and hot swapping for up to 127 external devices. Two of the four connectors are compatible with USB3.0 devices. The USB interface is USB EHCI, Rev. 2.0 compliant. The USB interface can be disabled in the system BIOS setup.

2.6 HDMI Connector

UNO-3483G provides a HDMI and VGA controller for a high resolution interface. It supports up to full HD resolution for two independent displays.

2.7 RTC Battery

The RTC Battery to ensure the setting in BIOS and system clock can be kept, even with power disconnected for a short time.

- Type: BR2032 (Using CR2032 is NOT recommended)
- Output Voltage: 3 VDC
- Location: front side removable cover named RTC BTR

2.8 Power Button/Power Management

Press the "PWR" button to power on or power off (ATX type). This product supports the ACPI (Advanced Configuration and Power Interface). As well as power on/off, it supports multiple suspend modes, such as Power on Suspend (S1), Suspend to RAM (S3), and Suspend to Disk (S4).

2.8.1 Power mode switch

User can set AT/ATX mode in BIOS setup menu "Chipset\Restore AC power loss".

- [Power ON]: AT mode
- [Power OFF]: ATX mode

Figure 2.9 AT/ATX adjustment

2.9 Reset Button

Press the "Reset" button to activate the hardware reset function.

2.10 PCI Express Mini Card Socket

There are three sockets for full size and one half size PCI Express mini cards. The first interface (CN28) is the default defined for Mini-PCIe, (or change to mSATA by BIOS menu setting). The second (MINI1) and the third (MINI2) interface is mainly target to support iDoor technology/ module for diversified application such as isolated COM port, Profibus, WLAN GPRS, 3G, mRAM and so on. Users can install the card easily by using the optional kit. The Fourth one (CN29) is a half-sized mini PCIe card which can be installed with Wi-Fi, Bluetooth, GPS modules for example.

Note! *The slot of MINI1 do not support USB interface.*

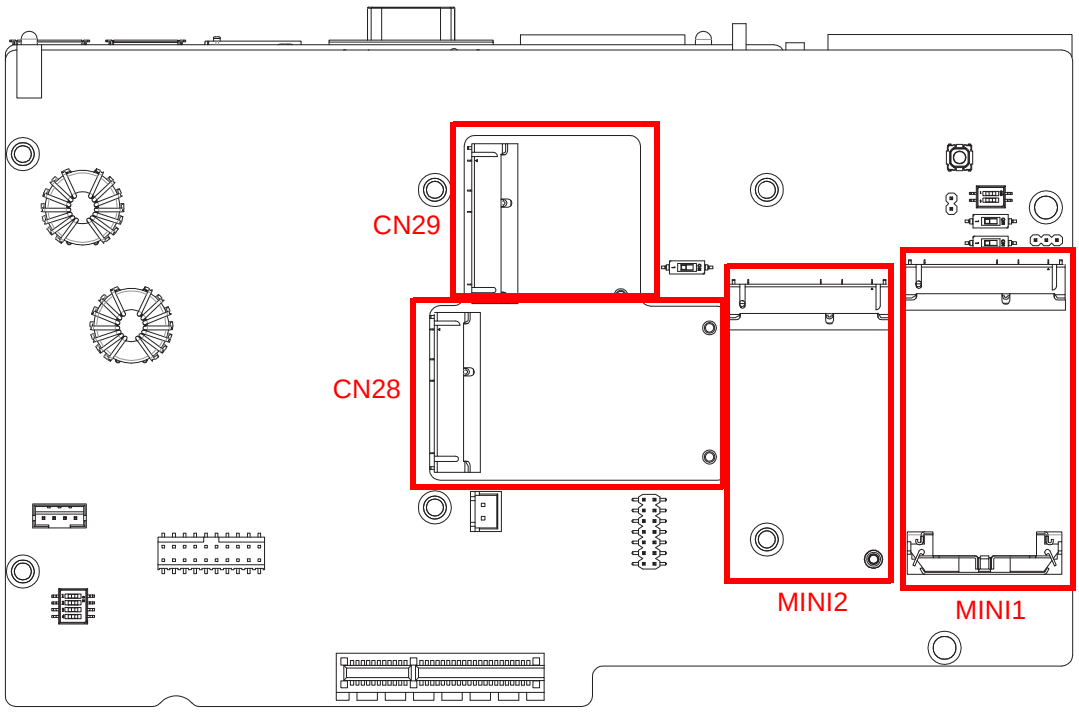


Figure 2.10 PCIE mini card sockets placement

2.10.1 Expansion type switch

User can set PCIe/mSATA mode in BIOS setup menu "Chipset\MINI Card/M-SATA".

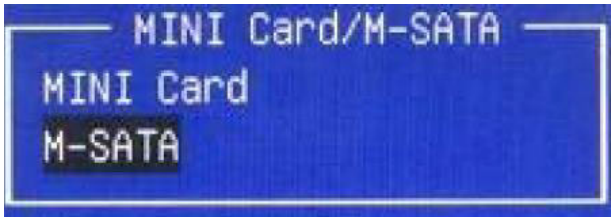


Figure 2.11 Mini card/MSATA switch

2.10.2 iDoor Expansion Slot

At the front side, there's a iDoor Expansion slot that provide user to install Mini-PCIe modules to extend extra I/O port for specific application, like Isolation COM, Digital I/O, CANOpen modules.

2.11 PCIe Slot

In order to fulfill user's extensive requirements, UNO-3483G provide one PCIe x4 slot. The PCIe slot could provide user to install standard PCIe card compatible with PCIe x4, for example, USB expansion card, Ethernet expansion card...etc.

Note! *This PCIe slot support 25W (max). The detail operates as below:*

- *12 V / 2.1 A max*
- *3.3 V / 3 A max*
- *3.3 V (standby) / 0.375 A max*

2.12 Dual Power Input and Remote Power Control

There are two additional functions for field applications combined in the power connector. One is a secondary power input that helps users plug-in a second power source to prevent main power source failure. The other is the remote power button that helps users remotely power up or power down the controller from a distance.

2.13 SATA HDD Drive

UNO-3400G series product supports two 2.5" SATA HDD with up to 6Gbps speed.

UNO-3483G support RAID0 and RAID1. The RAID function should be enabled in BIOS setup before you install an operating system into a RAID volume. User can enable RAID function in BIOS sub-menu "Advance\SATA Configuration".

Please follow the below steps to create a RAID volume.

1. Mount two SATA HDDs in the system.
2. Power on the system.
3. Press "F2" to enter into BIOS setup during POST.
4. Enable RAID mode in BIOS setup menu "Advance\SATA Configuration".

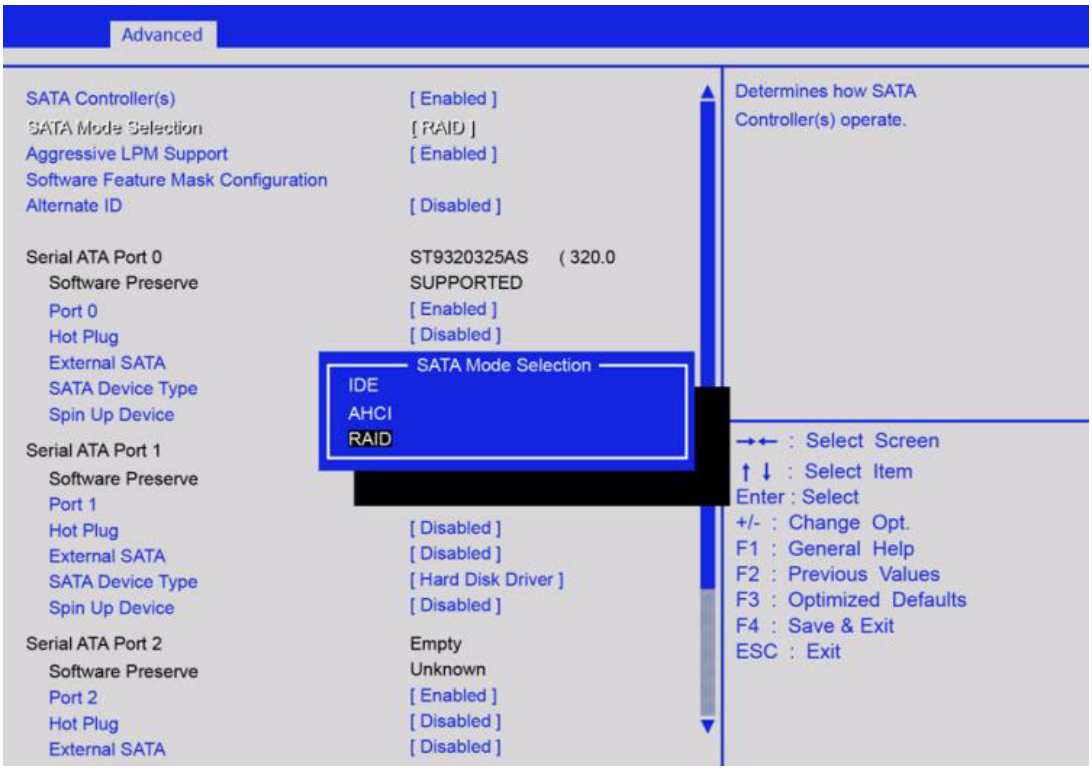

Advanced
SATA Controller(s) [Enabled]
SATA Mode Selection [RAID]
Aggressive LPM Support [Enabled]
Software Feature Mask Configuration
Alternate ID [Disabled]
Serial ATA Port 0 ST9320325AS (320.0
Software Preserve SUPPORTED
Port 0 [Enabled]
Hot Plug [Disabled]
External SATA
SATA Device Type
Spin Up Device
Serial ATA Port 1
Software Preserve
Port 1
Hot Plug [Disabled]
External SATA [Disabled]
SATA Device Type [Hard Disk Driver]
Spin Up Device [Disabled]
Serial ATA Port 2 Empty
Software Preserve Unknown
Port 2 [Enabled]
Hot Plug [Disabled]
External SATA [Disabled]
SATA Mode Selection
IDE
AHCI
RAID
Determines how SATA Controller(s) operate.
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit

Figure 2.12 SATA Mode Selection

5. Press "F4" to save and exist the BIOS setup.
6. Press "Ctrl+I" to enter RAID configuration utility when the Intel Rapid Storage Technology option ROM screen appears.

opyright(C) 2003-10 Intel Corporation. All Rights Reserved.
RAID Volumes:
ID Name Level Strip Size Status Bootabl
0 raid1 RAID1(Mirror) N/A 149.0GB Normal Yes
Physical Devices:
Port Device Model Serial # Size Type/Status(Vol ID)
0 ST9320325AS 6VDEJE0D 298.0GB Member Disk(0)
1 TOSHIBA MK1676GS 12QNC1MCT 149.0GB Member Disk(0)
ress <CTRL-I> to enter Configuration Utility..

Figure 2.13 Detecting RAID configuration

7. Create RAID volume in RAID configuration utility.

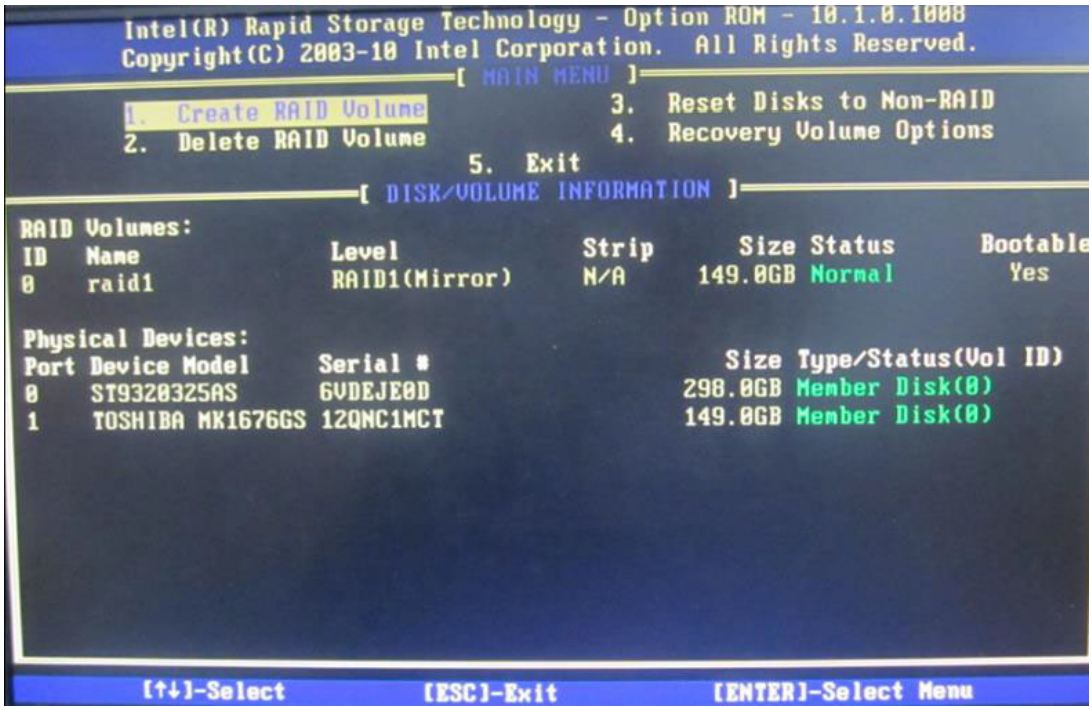

Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 raid1 RAID1(Mirror) N/A 149.0GB Normal Yes
Physical Devices:
Port Device Model Serial # Size Type/Status(Vol ID)
0 ST9320325AS 6VDEJE0D 298.0GB Member Disk(0)
1 TOSHIBA MK1676GS 12QNC1MCT 149.0GB Member Disk(0)
[↑↓]-Select [ESC]-Exit [ENTER]-Select Menu

Figure 2.14 Create RAID Volume

8. Follow standard procedure to install OS into the RAID volume.

Note!

1. *The Maximum height of 2.5" HDD supported on UNO-3483G is 9.5mm, and Maximum Power is 5V / 700mA per SATA port.*
2. *Hot-swappable function of HDD is in conflict with operation of RAID.*

2.14 Audio Jack

This product provides one Line-out port, one Line-in and one MIC (Pin Header).

2.15 LED Indicators

There are four LEDs to indicate the status of the system power, storage read/write, COM1 and COM2 transmit/receive.

- PWR: Green means normal.
- HDD, Tx/Rx1~2: Flashing green means signals are being transmitted and received.

2.16 Remote Power Button (SW3)

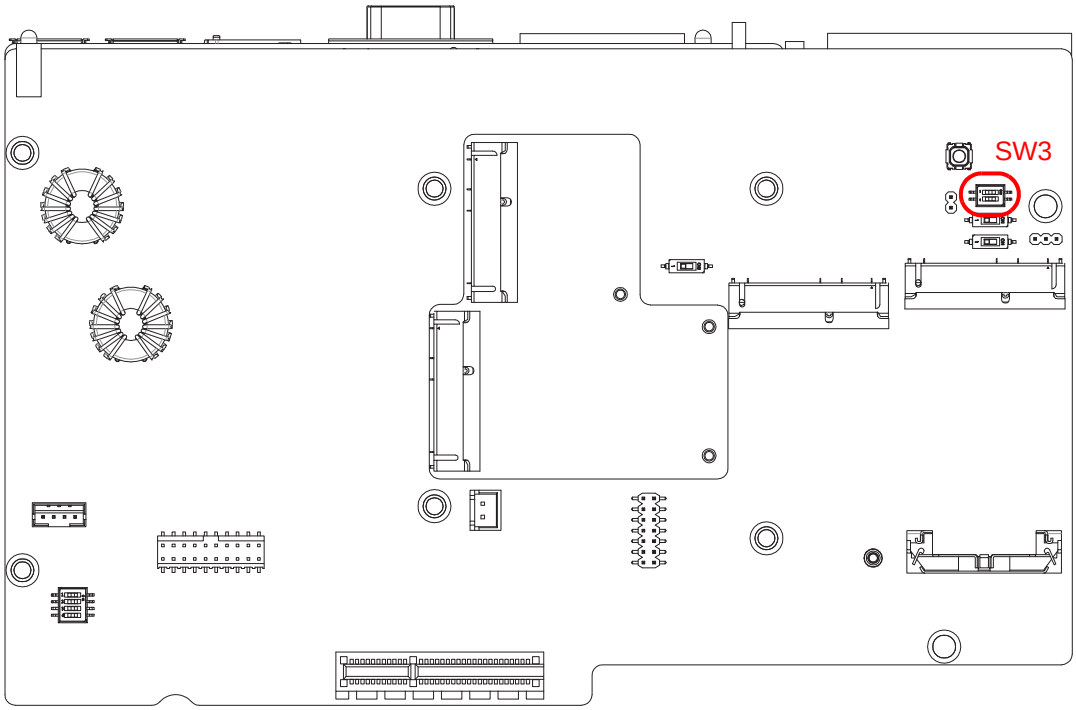
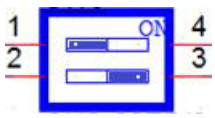


Figure 2.15 SW3 Location

- Wet contact, configure SW3(on upper board) to 1,3
  - Logic level 1: 10~30V
  - Logic level 0: 3Vmax



- Dry contact, configure SW3(on upper board) to 3,4
  - Logic level 1
  - Logic level 0

Chapter 3

Initial Setup

This chapter introduces how to initialize UNO-3000G series.

Sections include:

- Chassis Grounding
- Connecting Power
- Connecting a Hard Disk
- BIOS Setup and System Assignments

3.1 Connecting Power

Connect one or two 24 VDC power source to UNO-3483G.The power source can be from either a power adapter or an in-house power source.

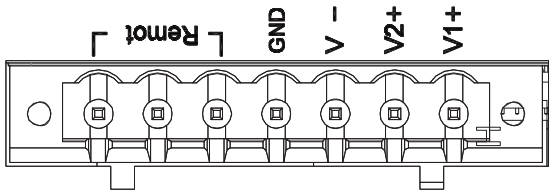


Figure 3.1 Dual Power Connector

3.2 Inserting a iDoor

UNO-3483G has dual iDoor for various expansions. Please follow the below exploded to install iDoor modules into the system.

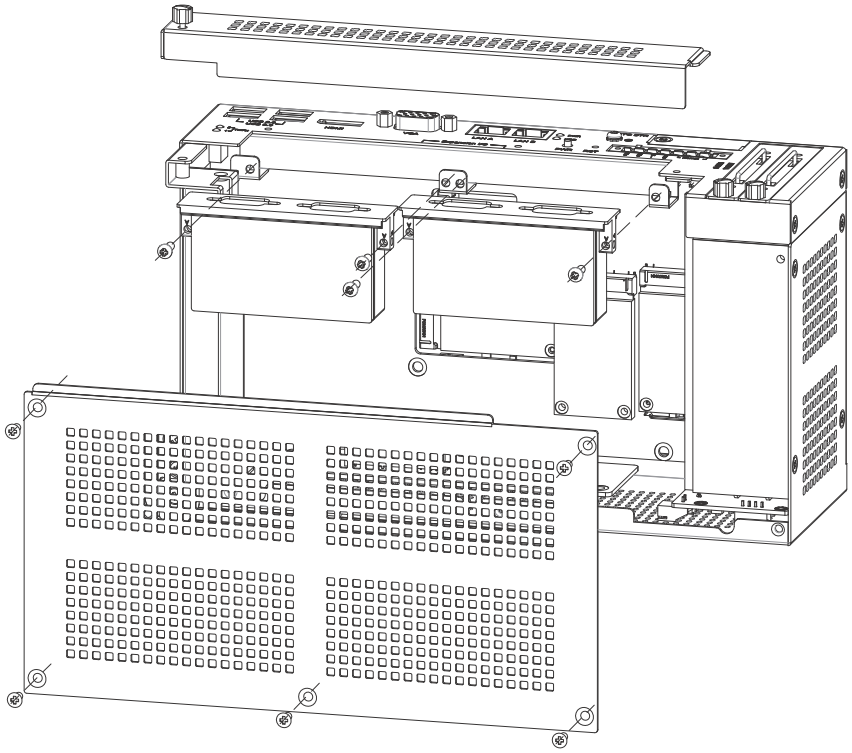


Figure 3.2 Assemble the iDoor module

3.3 Installing Hard Disk

Please follow the below steps to install a HDD/SSD into the system.

1. Release thumb screw and pull up the HDD/SSD bracket.

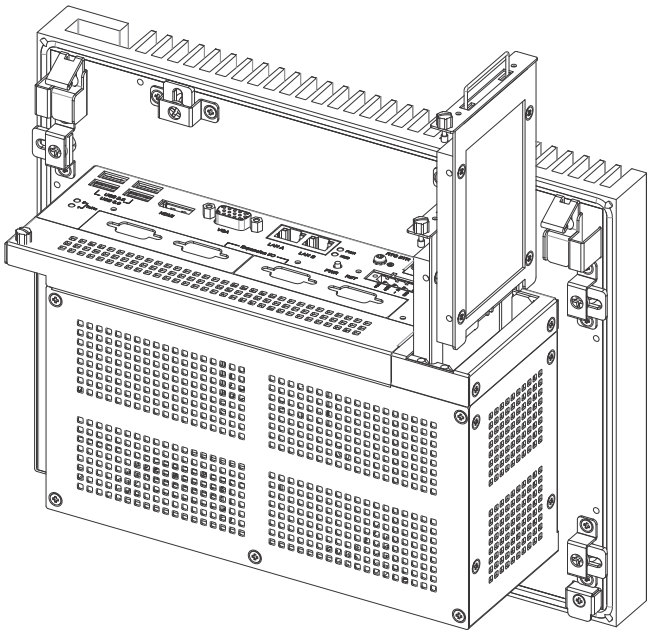


Figure 3.3 Pull up the HDD/SSD bracket

2. Screw on the HDD/SSD with bracket.

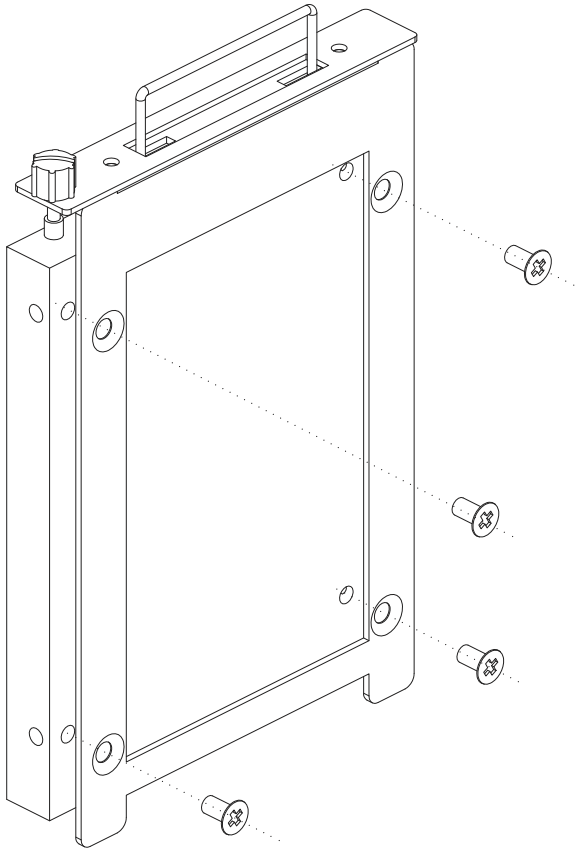


Figure 3.4 HDD assemblies with bracket

3. Put the bracket back & screw on thumb screw.

Note! *Available 130 mm space upon HDD bracket.*

3.4 Installing an Interface card

UNO-3483G provides optional backplanes to fulfill extensive require-ment in various project. These backplanes provide PCIex4 and PCI slots to be compatible with differ-ent interface cards. User can install interface cards based on their requirement.

Please follow the exploded to install an interface card.

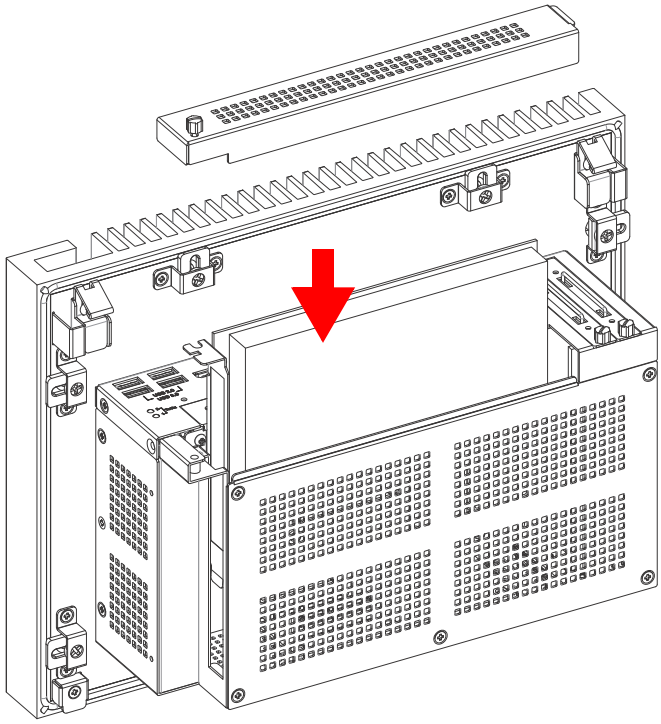


Figure 3.5 Screw off thumb screw and pull out the upper cover

3.5 Installing Power Cable

UNO-3483G provides an internal backup power on system board, External expansion cards or other devices that required additional power. Voltage level is same as V1+ or V2+.

3.6 Mounting UNO-3483G

UNO-3483G has unique design than embedded PC conventions. For highest performance product in Controal cabinet PC series, UNO-3483G has space-saving and the Placing & Click features, been designed mounting on outside cabinet closely are more convenient to users.

Four steps to easily mounting on cabinet:

Step 01

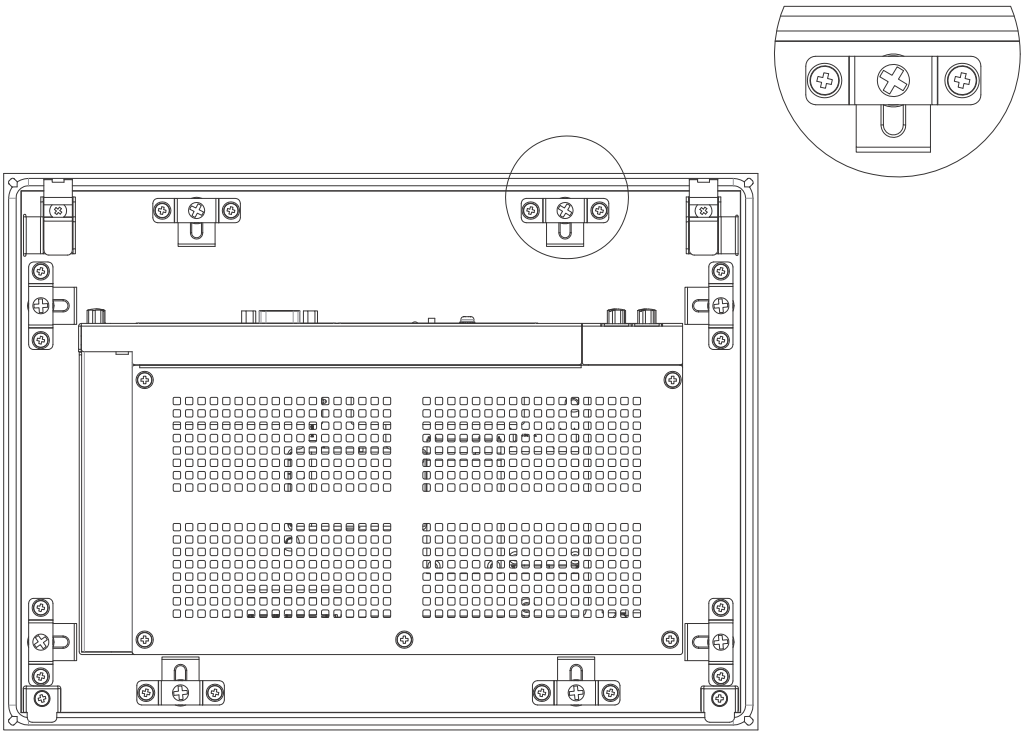


Figure 3.6 Placing & Click (I)

Step 02

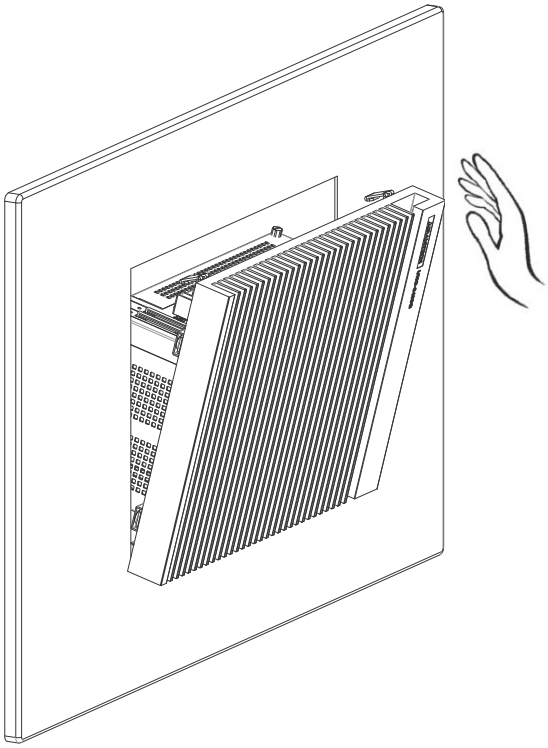


Figure 3.7 Placing & Click (I)

Step 03

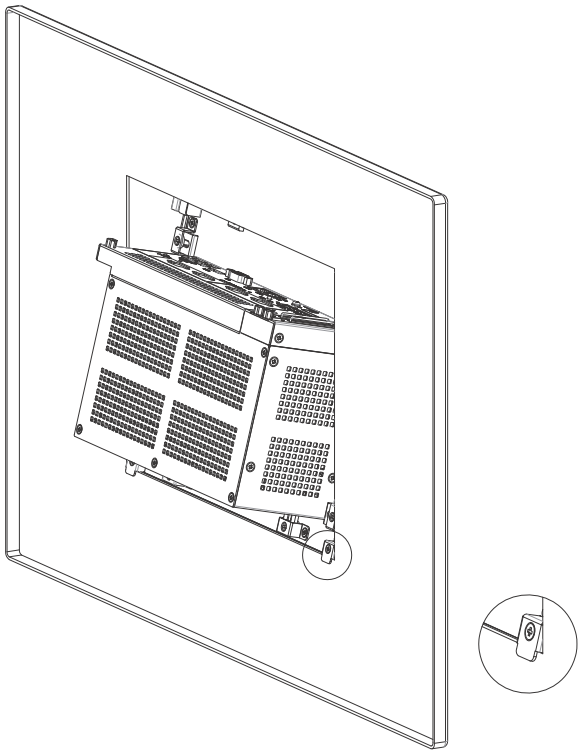


Figure 3.8 Placing & Click (II)

Step 04

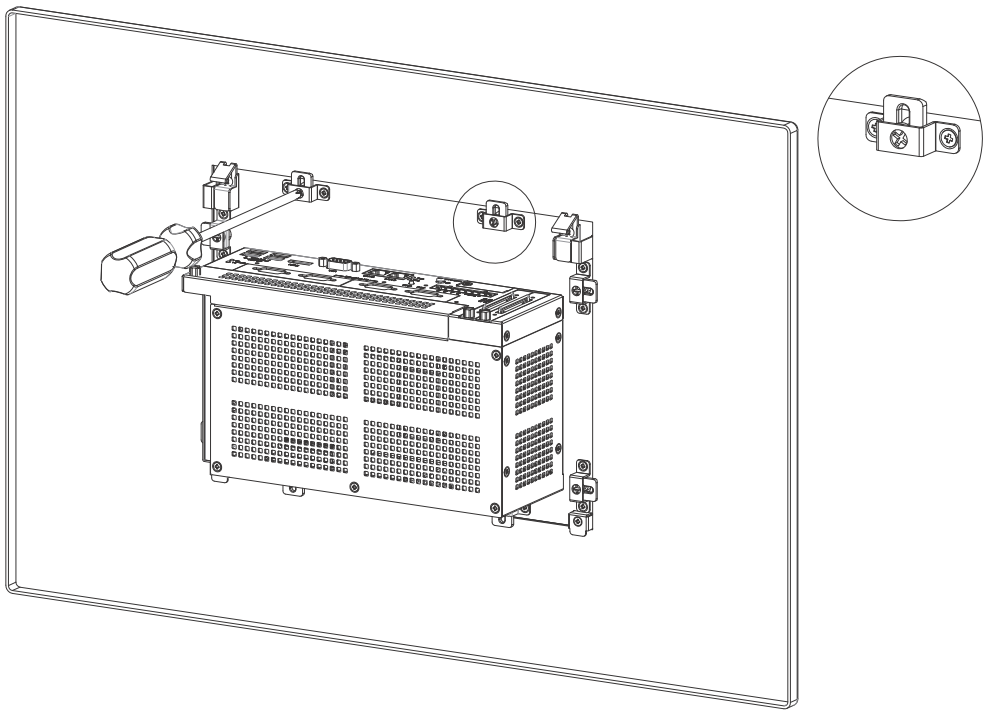


Figure 3.9 Screw on all snaps

UNO-3483G enclosure mounting on cabinet is rated IP67. Despite this classification, UNO-3083G is not impervious to water damage in any situation. It is important that heat sink mounting on cabinet is closed tightly.

Please note below tips carefully to prevent damage.

- Ensuring cabinet you used is rated IP67, and the dimensions of cut-out follow guideline.
- Whenever UNO-3483G gets wet, dry it thoroughly with a clean cloth.
- Whenever UNO-3483G gets ramming, inspect the enclosure of heat sink instantly and ensure the mounting on cabinet is closed

Note! *Cut-out dimension of cabinet: 291 mm x 211 mm*

Plate thickness of cabinet: 1.5 mm ~ 3.0mm

Appendix A

System Settings and Pin Assignments

A.1 System I/O Address and Interrupt Assignment

Table A.1: Interrupt Assignments	
Interrupt#	**Interrupt source**
NMI	Parity error detected
IRQ0	System timer
IRQ1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
IRQ2	Interrupt from controller 2 (cascade)
IRQ3	Communications Port (COM2)
IRQ4	Communications Port (COM1)
IRQ5	Available
IRQ6	Available
IRQ7	EC Watch DOG
IRQ8	System CMOS/real time clock
IRQ9	Microsoft ACPI-Compliant System
IRQ10	Available
IRQ11	Available
IRQ12	PS/2 Compatible Mouse
IRQ13	Numeric data processor
IRQ14	Primary IDE
IRQ15	Secondary IDE

A.2 Board Connectors and Switches

There are several connectors and switches on the inside board. The following sections tell you how to configure the hardware setting. Figure A.01 & A.02 show the locations of the connectors and switches.

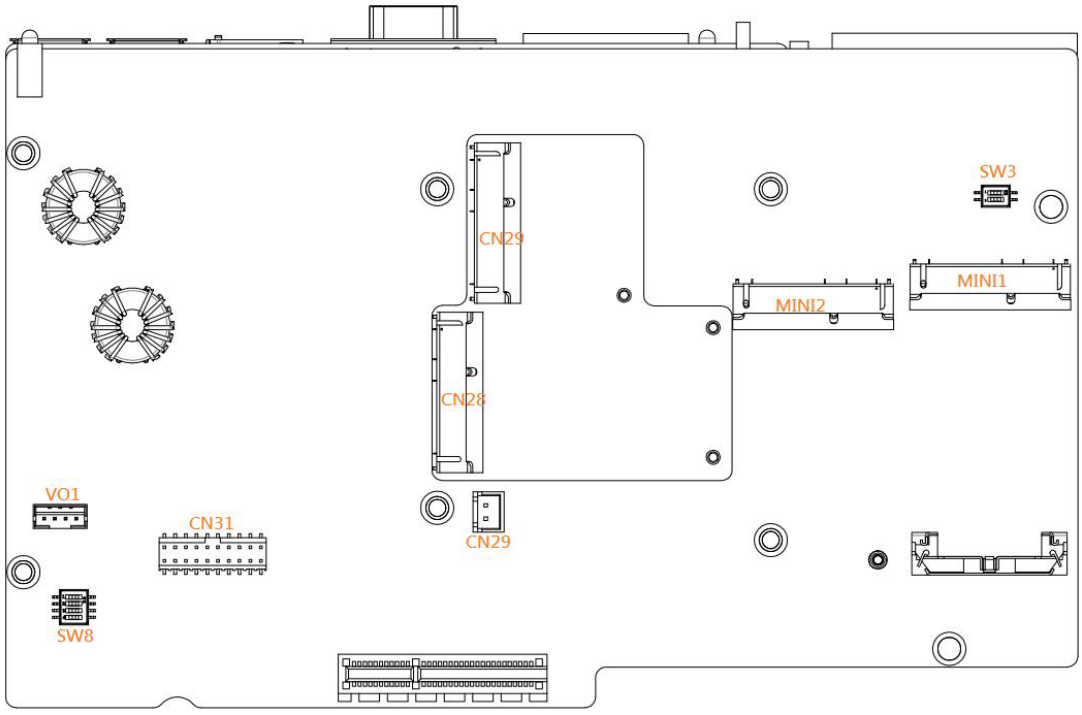


Figure A.1 Bottom view of System board

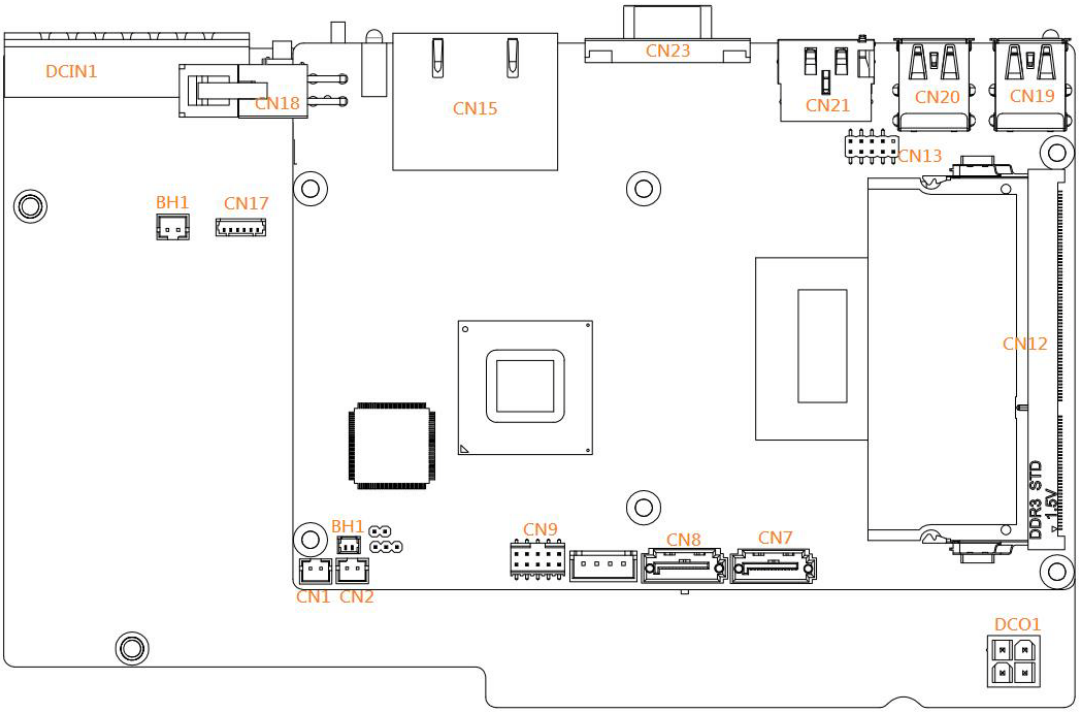


Figure A.2 Front view of Main/System board

A.3 Function of connectors & switches

The connectors and switches on the inside boards are defined as table A.2 & A.3.

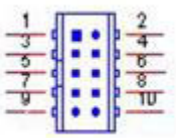
Table A.2: Connectors on main board

Label	Function
CN1	Power Switch
CN2	Reset
CN6	SATA Power
CN7	SATA2
CN8	SATA1
CN9	Audio
CN12	SODIMM-DDR3
CN13	Internal USB
CN15	LAN
CN18	12V Power Input
CN19	External USB2.0+USB3.0
CN20	External USB2.0+USB3.0
CN21	HDMI
CN23	VGA
CN31	COM1/COM2
CN28	Mini PCIE/mSATA
CN29	Mini PCIE

Table A.3: Connectors on System board	
Label	**Function**
MINI1	Mini PCIE
MINI2	Mini PCIE
SW3	Remote configuration
SW8	COM2 configuration
DCN1	Power input 12V/24V
VO1	Reserved for power output, the voltage is the same as power input (DCIN1)
BH1	RTC battery input
DCO1	12V power output
CN17	Power switch, reset, RTC battery output
CN18	12V Power Input
CN29	5V power output

A.4 Audio (Pin header)

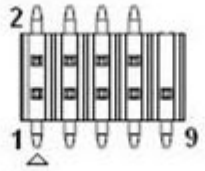
Table A.4: CN9	Audio
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	
Pin	**Pin Name**
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L



Matching cable: 1700019584 or 1703100152

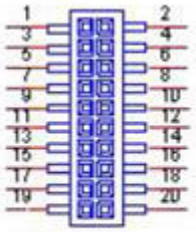
A.5 Internal USB

Table A.5: CN13	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



A.6 COM1/COM2

Table A.6: CN31 COM1/COM2	
Pin	**Pin Name**
1	DCD1#
2	DSR1#
3	RXD1
4	RTS1#
5	TXD1
6	CTS1#
7	DTR1#
8	RI1#
9	GND
10	GND
11	485-422_TXN-DCD#
12	NA
13	485-422_TXP-RXD
14	NA
15	422_RXP-TXD
16	NA
17	422_RXN-DTR#
18	NA
19	GND
20	GND

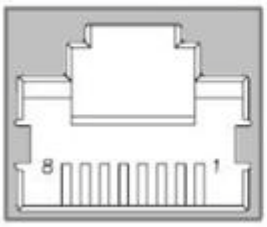


Matching Cable: 1701200220

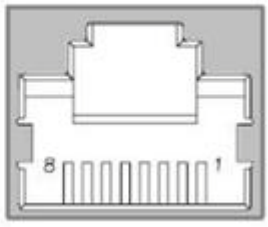
A.7 LAN1/LAN2

Table A.7: CN15 LAN1/LAN2	
Part Number	1652003274
Footprint	RJ45_28P_RTB-19GB9J1A
Description	PHONE JACK RJ45 28P DIP Gold flash RTB-19GB9J1A
Pin	**Pin Name**
1	TX+(10/100),BI_DA+(GHz)
2	TX-(10/100),BI_DA-(GHz)
3	RX+(10/100),BI_DB+(GHz)
4	BI_DC+(GHz)
5	BI_DC-(GHz)
6	RX-(10/100),BI_DB-(GHz)
7	BI_DD+(GHz)
8	BI_DD-(GHz)

LAN1

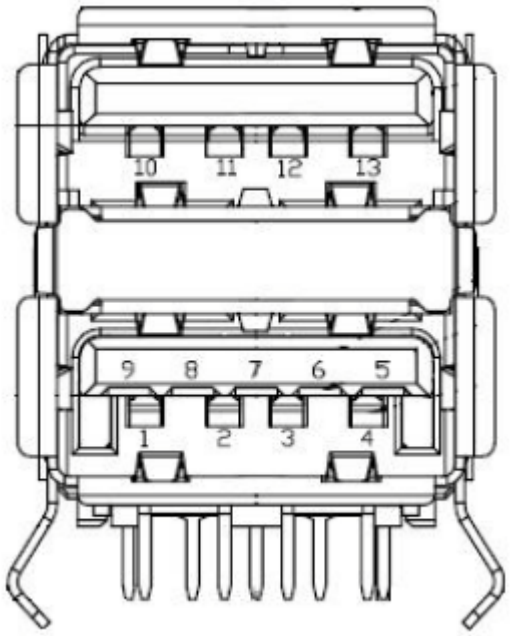


LAN2



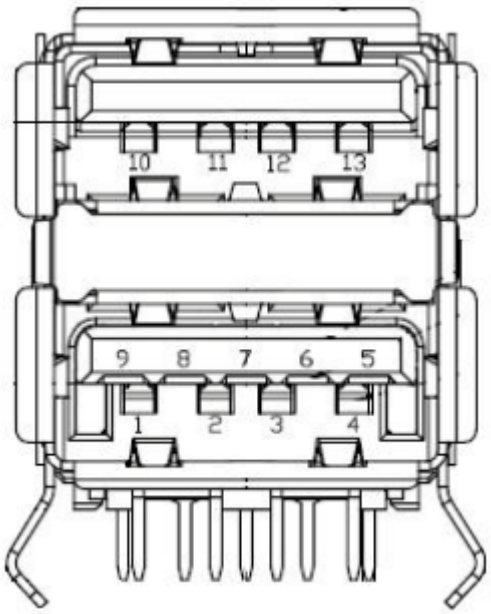
A.8 External USB2.0+USB3.0

Table A.8: CN19 External USB2.0+USB3.0	
Part Number	1654010199
Footprint	USB_13P_UEA1112C-UHS6-4F
Description	
Pin	**Pin Name**
1	+5V
2	D-
3	D+
4	GND
5	SSRX-
6	SSRX+
7	GND
8	SSTX-
9	SSTX+
10	+5V
11	D-
12	D+
13	GND



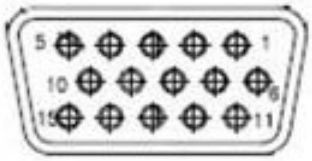
A.9 External USB2.0+USB3.0

Table A.9: CN20 External USB2.0+USB3.0	
Part Number	1654010199
Footprint	USB_13P_UEA1112C-UHS6-4F
Description	
Pin	**Pin Name**
1	+5V
2	D-
3	D+
4	GND
5	SSRX-
6	SSRX+
7	GND
8	SSTX-
9	SSTX+
10	+5V
11	D-
12	D+
13	GND



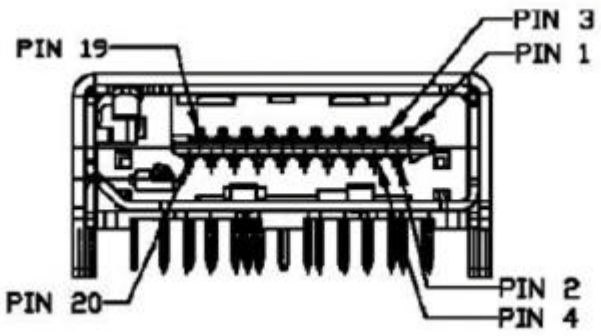
A.10 VGA

Table A.10: CN23 VGA	
Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	**Pin Name**
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK



A.11 HDMI

Table A.11: CN21 HDMI	
Part Number	1654010203
Footprint	HDMICON_21P_845-002-217CRL
Description	
Pin	**Pin Name**



A.12 Power Connector (PWR)

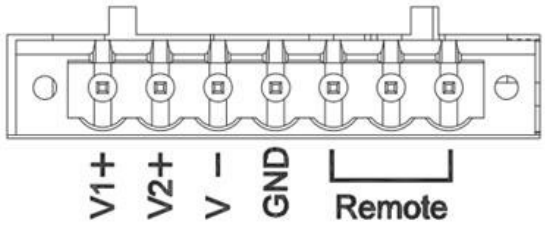


Table A.12: Power connector pin assignments	
1 V1+	24 VDC Input 1
2 V2+	24 VDC Input 2
3 V-	Power Ground
4 GND	Chassis Ground
5 Remote	Power Button
6 Remote	System Reset
7 Remote	Remote Ground

Table A.13: CN1 Power Switch	
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 180D(M) 2.0mm W/Lock
Pin	**Pin Name**
1	PSIN
2	GND

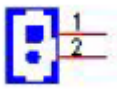


Table A.14: CN2 Reset	
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 180D(M) 2.0mm W/Lock
Pin	**Pin Name**
1	RESET#
2	GND

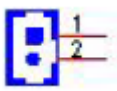


Table A.15: CN6 SATA Power	
Part Number	1655001154
Footprint	WF_4P_98_BOX_R1_D
Description	
Pin	**Pin Name**
1	+5V
2	GND
3	GND
4	NC

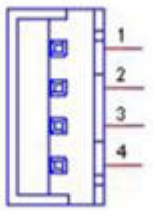


Table A.16: CN7 SATA2	
Part Number	1654007578
Footprint	SATA_7P_WATF-07DBN6SB1U
Description	
Pin	**Pin Name**
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

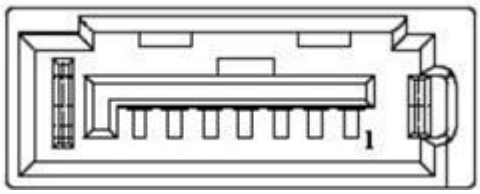


Table A.17: CN8 SATA1	
Part Number	1654007578
Footprint	SATA_7P_WATF-07DBN6SB1U
Description	
Pin	**Pin Name**
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

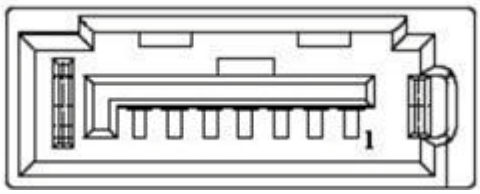


Table A.18: CN28/CN29 Mini PCIE	
Part Number	1654006715
Footprint	MINIPCIE_FULL_HALF_STANDARD
Description	
Pin	**Pin Name**
1	WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	UIM_PWR
9	GND
10	UIM_DATA
11	REFCLK-
12	UIM_CLK
13	REFCLK+
14	UIM_RESET
15	GND
16	UIM_VPP
17	NC
18	GND
19	NC
20	NC
21	GND

Table A.18: CN28/CN29 Mini PCIE	
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	PETn0
32	SMB_DAT
33	PETp0
34	GND
35	GND
36	USB D-
37	GND
38	USB D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB

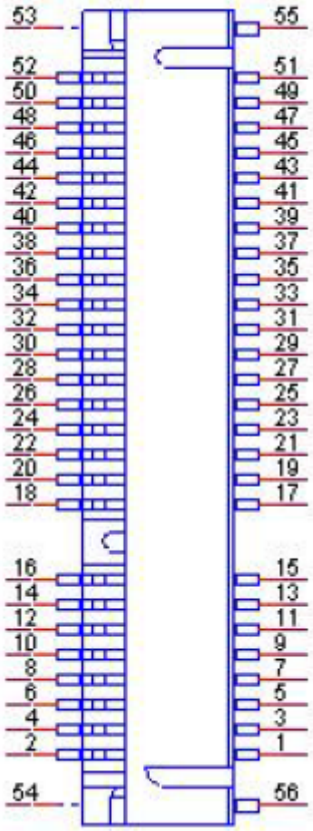


Table A.19: MINI 1 / MINI 2 Mini PCIE	
Part Number	1654006715
Footprint	MINIPCIE_FULL_HALF_STANDARD
Description	
Pin	**Pin Name**
1	NC
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	NC
9	GND
10	NC
11	REFCLK-
12	NC
13	REFCLK+
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC

Table A.19: MINI 1 / MINI 2 Mini PCIE	
20	NC
21	GND
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	PETn0
32	SMB_DAT
33	PETp0
34	GND
35	GND
36	USB D- (MINI2 only)
37	GND
38	USB D+ (MINI2 only)
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB

Note! *MINI1 (No Connection on pin 36/38)*

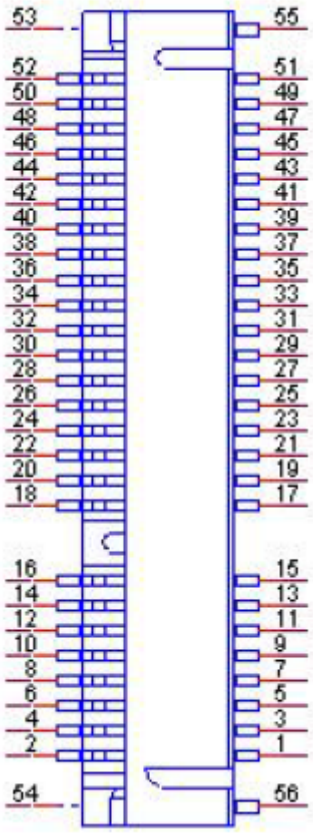


Table A.20: CN29 (on system board) 5V power output	
Part number	1655002020
Footprint:	WF_2P_98_BOX_R1_2503-WS-2_D
Description	
Pin	**Pin name**
1	5V
2	GND

Note! *This connector support max 1.5 A.*

Table A.21: VO1: reserve for power output, the voltage is same as power input (DCIN1)	
Part number	1655304020
Footprint	WF_4P_79_BOX_R1_D
Description	
Pin	**Pin name**
1	12V/24V
2	12V/24V
3	GND
4	GND

Note! *This connector support max 2 A.*

Table A.22: CN17 power switch, reset, RTC battery output	
Part number	1655000953
Footprint	WHL6V-49-24W1251
Description	
Pin	**Pin name**
1	Power switch
2	GND
3	RTC battery output
4	GND
5	Reset
6	GND

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